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ABSTRACT

Despite many different educational reform efforts, a simple pedagogy is still adhered to: students will learn what they are taught. Schooling is still teacher-centered with lecture and recitation being the practices primarily utilized. At the turn of the century, there were two established educational traditions in place. One tradition believed that schools could take a divided and diverse population and prepare students for participating in a self-governing political community. This tradition assumed a simple pedagogy and paid little attention to the complexities of teaching and learning. The other tradition drew from the Romantics and depicted education as an adventure, of opportunities for learning through solitary experiences often associated with learning about the self in relation to the natural world. Students were their own best teachers. John Dewey suggested that these two traditions could be joined. This paper explores possible barriers to change in education to include more of the second tradition and suggests that reformists might consider the idea of creating a tradition of change. Disciplinary boundaries are temporary and penetrable, and knowledge is undergoing an accelerated rate of change. An interdisciplinary curriculum requires recognition of the interdependence of knowledge and its relevance to the life of the learner. Interdisciplinary content areas such as environmental education could serve as a vehicle, a meaningful context for teaching and learning about all of the disciplines taught in schools. (Contains 11 references.) (PVD)

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School Change and the Introduction of New Content: The Case of Environmental Education

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"It is interesting, I think, that we may speak of a potter having educated fingers or of a field goal kicker as having an educated toe. These may be metaphorical expressions, but they suggest, nonetheless, that in some respects the concept of education is more closely related to training than to teaching . . . "
Thomas Green (1971)

"The Earth as the home of man is humanizing and unified; the Earth viewed as a miscellany of facts is scattering and imaginatively inert."
John Dewey (1916)

"Teaching has to do with releasing people to learn how to learn. It has to do with possibilities and personal discoveries, making connections, opening doors."
Maxine Greene (1986)

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Introduction

I open this paper about school change with these three quotes because they represent issues that have been voiced throughout the history of education in America. Certainly, as Thomas Green suggests we often perceive the value of one's education as to the degree to which one has been trained. For example, the issue of teaching "the basics" characterizes well, the notion of training. The sense is that we need to better train students to read, write, and compute, which is a very different notion than providing students with opportunities to learn more about language and mathematical problem-solving. Looking inside classrooms and observing teachers interacting with students, it is easy to confuse the two. From my own experience in schools, I tend to think that what teachers do is more closely associated with training than with teaching. Maybe that is because I associate teaching with Maxine Greene's proposal that it is an activity requiring the negotiation of possibilities around efforts toward discovering ways in which students learn how to learn. In this view teaching becomes a wondrous and adventurous and adventurous expression born in the desire to create knowledge, constructing

meaning by opening doors, or as Griffin (1991) so eloquently states, "crashing through open windows." The image of releasing people to learn how to learn is a powerful notion. I cannot remember in my experience as a public school student ever being encouraged to explore possibilities. Rarely did a teacher express tendencies related to learning how to learn. There was never a course or a unit of study focused on learning to learn. Interesting. Students moving through the schooling system are subjected to being treated as passive recipients, expected to memorize information for the sole purpose of regurgitating that information on Friday's exam. This experience is very much in line with Dewey's notion of perceiving the Earth as a "miscellany of facts . . . scattering and imaginatively inert." Considering the meanings embedded in the concepts of imagination, possibility, discovery, making connections, creating opportunities to learn how to learn, renders one to feel a sense of liberation. These are the ingredients of the recipe for understanding the intentions and responsibilities of true teaching.

Despite the myriad of educational reform efforts throughout history, it appears we still adhere to a simple pedagogy: that students will learn what they are taught. Teachers through

curriculum texts for the most part, tell students what information is important to know. And the result of their remembering this information over a relatively short period of time is how one is judged a successful student or a dismal failure. Teachers talk. Students listen. And when students talk they are generally punished as a consequence. The reason I describe teaching in this manner, albeit simplified and not always representative of teaching in schools, is that for the most part, not much has really changed. The perception of schooling today is probably very similar to schooling as it was perceived ten, twenty, fifty, even a hundred years ago. It is teacher-centered. Lecture and recitation are the practices primarily utilized. Many students are bored. Rote learning is the rule.

Drawing from the works of Cohen (1987), and Cuban (1990) I will explore the conditions of school change. I will then discuss the difficulties and barriers in the introduction of a new content area into the curriculum. I will then conclude with a discussion of various research methodologies designed to investigate curriculum change.

Conditions of School Change

At the turn of the century there were two established educational traditions in place. One tradition led by people like

Horace Mann and Catherine Beecher believed that schools could take a divided and diverse population and prepare them for participating in a self-governing political community. They, like people today, worried about urban crime, delinquent children, immigrants, and uneducated teachers. Their belief was compulsory public schooling remediate an ignorant and unruly people and thereby redeem a threatened democracy. They held the assumption of a simple pedagogy, and that students would learn what they were taught. Few paid attention to the complexities of teaching and learning.

The other tradition, radically different than the first, drew from the Romantics, including Rousseau and Mark Twain. They depicted education as an adventure, of opportunities for learning through solitary experiences often associated with learning about the self in relationship to the natural world. Their conception was that students were their own best teachers. Seeing education as a solitary adventure led them to become critical of popular schooling practices. They abhorred the notion of schools which were to them places of boring and formal instruction. It was a time when learning about the world from oneself was being replaced with learning as a compulsory

experience directed by teachers who were poorly educated themselves.

However, John Dewey changed ideas about American education when he suggested that these two different traditions could actually be joined. He argued that public schools could, in fact, nurture the wild, risky, adventurous learner, that education in the Romantic sense could occur in schools, that schools could take advantage of idiosyncrasy. Dewey's synthesis of these two apparently divergent traditions offered Americans a new vision of what schools could do, that they could harmonize real experience and academic learning. Schools could, in Dewey's sense, replace the tedious activities of drill and practice with spontaneous discovery and excited learning, leading students through great adventures. Rooted deeply in Dewey's conception was that students could learn the essential lessons in school through the pursuit of individual direction. And therefore, he re-imagined the nature of teaching and learning. Rather than fitting the student to the curriculum, Progressives were anxious to fit the curriculum with the student. They redefined an equal education, from all students being required to take the same academic curriculum to all students taking different courses intended

to cultivate their varied interests. However, as Cuban suggests, Progressive ideas about the nature of teaching have made, at best, only moderate headway. Considering Dewey's great influence of through toward education, the questions remains, even today, why have schools remained virtually the same? Why have they not changed?

One reason, according to Cohen, lies in the organizational structure of schools. Another reason, and probably more profound in its implications, revolves around the conditions in which teachers and work. Most teachers work with a curriculum they themselves have had no part in creating, and often work with materials they do not like. This condition suggests a high level of inflexibility. Teachers work under conditions where they must either deliver instruction in a number of subject areas, or they must teach the same subject to many students over the course of the school day. The time for teacher-student engagement in any of the subject areas tends to be limited to twenty to fifty minutes. Teachers are also required to supervise extra-curricular activities, monitor hallways, lunch rooms, and playgrounds, be present at numerous committee and faculty meetings, as well as attend to an enormous amount of paperwork.

These contexts are not necessarily conducive to teachers' reflection and analysis of their work in both curriculum and instruction, and limit their opportunities for experimenting with alternative materials or teaching strategies. And if conditions were not difficult enough, teachers are generally poorly paid for their work and held in low esteem by the public. Working conditions do not enhance teachers' inclination for taking new innovations demanding of time and increasing effort. Cohen wondered that "if these considerations account for the absence of much innovation in teaching, then one would expect teachers' work to be much more innovative when these conditions were absent." However, in comparing the work of school teachers to the work of teachers at colleges and universities, who have much lighter teaching loads, design their own courses, choose their own curriculum materials, are held in higher esteem, studies indicate that teaching in colleges and universities is remarkably similar to what is observed in public schools. Lessons are generally teacher-directed and students are required to memorize information.

Cohen suggests that in addition to workplace conditions of teachers, there is frailty in the reforms themselves, that there is inadequate resources to do the job, little money and too few people

from which to affect change. Then, there is also the consideration of administrators who press for reform without addressing teachers' concerns. In addition, political messages change rapidly which tend to dissipate the momentum of reform movements. For example, some would argue that change is impeded by the lack of competition among public schools. Political agencies and school districts around the country are now exploring school choice as an incentive for school reform.

Interestingly schools are filled with students who would rather not be there, who do not care much for academic study. This may be a reflection of community values which typically support involvement in sports, social events, and vocational endeavors. These do little to enhance students' interest in intellectual pursuits, or in teachers' interest in creatively addressing curricular issues. Cohen makes an interesting argument that because schooling requires compulsory attendance the very nature of schooling is perceived to be an ordinary and unspecial enterprise. In addition, schooling permits most students to move through the system requiring little effort on their part, reinforcing the notion that their education is unspecial. One of the highest priorities in schools is to

have students remain quiet in orderly classrooms, rather than pressing students and teachers into adventurous experiences. And, there remains very little in the way of legitimate alternatives for students and teachers who wish to explore innovative ways in which to collaborate around experiences in learning. Under these circumstances it is easy to see why teachers settle for minimal academic work from students as a way to insure peace and quiet, and avoid being labeled as troublemakers.

However, considering that these difficulties are important to address, Cohen suggests that they may not explain the glacial pace of change in teaching. Attempts to explain the absence of change are often characterized by terms such as barriers, obstacles, or impediments to improvement, as if were they to be removed change would occur. How is it that we too often assume that change is a normal state of affairs? Maybe our expectations of stability in education outweigh our desire for change. This is an interesting notion to consider. When one ponders the nature of the material embedded in curriculum, the knowledge presented to students largely through the use of texbooks, it is easy to see that our perception of knowledge itself is rather static. Contrary to this

perception, however, is the notion that knowledge is dynamic, fluid, in constant motion. Our attempt at understanding the world around us has illuminated this endeavor to be a pursuit of describing an ever changing picture. There is certainly a paradox in here somewhere. On one hand knowledge is presented as constant, fixed, grounded in truth. On the other hand we understand knowledge is in a constant state of perpetual change. In this sense, it is much more appealing to look at teachers and students constructing knowledge and creating meaning together. However, this constructivist approach to teaching and learning is often absent from practice.

Returning to Cuban's article, I think it's important to consider several important questions addressing the recurrence of reform movements. Recurrence of school reforms suggest that the prior reforms have failed to answer the problems they were intended to solve. Cuban asks a series of important questions. Are we attacking the right problem? Have the policies adopted fit the problem? Have practitioners implemented the policies as intended? Are we dealing with the problem or the politics of the problem? Right problems, wrong solutions, or vice versa? Cuban suggests that reforms occur because policy makers fail to diagnose problems and promote correct

solutions, and that they tend to cave in to the politics of a problem rather than the problem itself. Reforms return because decision makers seldom seek reliable evaluations of program effectiveness before putting a program into practice.

One suggestion that reformists might take into consideration is the idea of creating a tradition of change. Nowhere perhaps is this more evident than in attempts at reforming curriculum organization. Disciplinary boundaries are temporary and penetrable. Knowledge today is unstable in the sense that is undergoing an accelerated rate of change. In order to feel at home on our planet, every person needs to have an understanding of the process by which new syntheses resolve crises in knowledge. Such syntheses, according to Cohen, cannot be reflected in a compartmentalized curriculum.

The Introduction of New Content and The Case of Environmental Education

Today there is a marked struggle for curriculum renewal following the broken down "back to basics" movement in the 1970's and 1980's, and the realization that curriculum fundamentalism has resulted in a decline in students' thinking ability and writing proficiency. Tanner (1989) suggests, that from the historic record, it

was predictable that reducing the curriculum to the lowest common denominator of basic education would result in a curriculum of poverty with distressing results. I think this will happen again as the pendulum swings toward requiring more "hard" subjects repeated over more and longer semesters. Once again the doors close to opportunities for discovery, and a more student-centered approach to teaching and learning.

Curriculum reform is essential if schooling practices are to break out of a traditional void of sustained change. But what kind of curriculum change? There is a biological principle that structure determines function, from which is derived the architectural notion that form follows function. This is no less valid for the curriculum. Interdisciplinary curriculum designs are needed to counter the isolation and fragmentation of knowledge that plagues the traditional curriculum. Interdisciplinary curriculum requires a new recognition of the interdependence of knowledge and its relevance to the life of the learner. Ornstein (1989) predicts that in the curriculum of the future subject matter most likely will be less compartmentalized and more integrated and holistic. It is my sense that in working with teachers that there is growing both interest in and a change in

practice toward understanding interrelationships within and among subject matter disciplines. In light of considering an optimistic future for the development of interdisciplinary curriculum I am hopeful that interdisciplinary content areas such as environmental education will serve as a vehicle, a meaningful context for teaching and learning about all of the disciplines taught in schools; a means for examining our understanding of the world around us from the perspective of exploring interrelationships.

Environmental education can be defined as the educational process dealing with peoples' relationships with the natural and man-made surroundings. It is the only subject area, that by the very nature of its content, is truly interdisciplinary. Inherent within all environmental education is the philosophic belief that we must seek nothing less than a basic reform in the way our society looks at problems and makes decisions. Environmental education can provide an integrative, global frame of reference as a context to help us better understand all of the other subjects taught in school.

Recently, it has generally been accepted that public schools should be instrumental in accomplishing the goals of environmental education (Disinger, 1989). However, research has suggested that

barriers do indeed exist in public schools and that they can be categorized into four broad groups, as characterized by Ham and Sewing (1988):

1. Conceptual barriers that stem from a lack of consensus about the scope and content of environmental education. Several misconceptions about environmental education help promote its lack of consistent identity. One is that environmental education is relevant only to science curriculum. Rather, environmental education should be infused into all subjects taught in school. Most scholars in environmental education promote a holistic approach to dealing with environmental issues, whereas only a few advocate that this subject be added as a separate course of study to an already overcrowded curriculum. In addition to science, environmental education is most often associated with outdoor education. These conceptual barriers make it difficult for environmental education to find a home in the curriculum.

2. Logistical barriers are those stemming from a perceived lack of time, funding, resources, and appropriate class sizes. Tewksbury and Harris (1982) reported time to be an important factor in three ways. First, time is needed to develop a comprehensive, usable

curriculum with specific objectives and goals. Second, time is needed to prepare materials and lesson plans. Finally, there is a perceived problem in finding actual class time for environmental education. Two other significant factors mentioned repeatedly in the literature are lack of funding and lack of curriculum materials.

3. Educational barriers stem from teachers' misgivings about their own competence to conduct environmental education programs. Teachers with poor background in a discipline may lack the personal interest or commitment to provide adequate instruction in that subject area. For example, Mirka (1973) found that a primary reason teachers did not conduct outdoor activities was their lack of knowledge about how to approach the development of these activities.

4. Attitudinal barriers are those arising from teachers' attitudes about environmental education. The supposition is that if teachers do not have positive attitudes toward environmental education, very little instruction in this area will occur in the classroom. Spooner and Simpson (1979) observed that both preservice and inservice elementary teachers frequently have neutral or negative attitudes toward science and tend to teach little if

at all in this area. If environmental education is predominantly offered within science curricula as previously suggested, such findings may suggest that students are shortchanged in science and in environmental education.

Suggestions for easing the implementation of environmental education into the curriculum include staff development projects, providing more resources for teachers, and providing graduate programs designed for interested teachers in developing ways of thinking about infusing environmental education into the curriculum.

Cohen suggests that practices involved in human improvement, as environmental education is intended to do, are inherently problematic. There is usually considerable conflict among educators about both the nature of human improvement and the ways to achieve it. Also, such efforts at introducing new content do not come easily or naturally.

Research into educators beliefs, perceptions, and practices related to the implementation of environmental education curriculum and instruction is informative as to the nature of addressing further how a new content are is introduced into the existing curriculum. Teachers who are interested in exploring

environmental education will do so, and they will also be instrumental in becoming resources for teachers with inquisitive inclinations, particularly those dealing with interdisciplinary approaches to curriculum emphasizing context. This may be due, in large part, to the nature of teacher held beliefs, and how these beliefs affect what is taught in the classroom.

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